UHF Read Write ISO 18000-6c / EPC /RAIN ISO 17712:2013

Intermodal Container Seal V11

Description

Applications

The Tenacent Intermodal V11 RFID Seals are used in applications where long-range, multi-read, container, rail cars or truck identification, tamper evidence and authentication are required

- Intermodal Seals are used to secure ocean containers, trailers, rail cars, air cargo and other containers in the same way as a traditional seal, without any special training being necessary for its installation.
- Intermodal Seals can be read up to 14m depending on reader power output and other environmental conditions. The optimal container seal reading distance is approximately 5-6 meters, which is adequate for unmanned portals or gates. Where portals are manned, this distance ensures that staff are also in a position to verify that a container has not been tampered with, both visually and by reading Intermodal Container Seal with a handheld or other compatable RFID reader.

Chipset

Alien Higgs-3 Single chip UHF Tag IC. The chip conforms to the EPCglobal Class 1 Gen 2 specifications and provides state-of-the-art performance for a broad range of UHF RFID tagging applications

Tag Construction

- The Seal consists of an UHF RFID tag array inserted in an ISO 17712 compliant container bolt with modified locking mechanisms to detect tamper by disabling communications. High impact plastic mouldings provide visual evidence of Tampering.
- Bolt : Carbon steel with zinc plate and chromate finish.
- Lockbody: A metal insert with high impact ABS case.

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Key Features

- Low cost single chip passive RFID solution
- Available for most spectrum allocations, including FCC, ETSI, ICASA, ACA, WPC
- Compatible with all EPC / ISO18000-6c UHF compliant readers
- Fast moving tags can be read up to 80km/h
- Factory programmed Unalterable 64-bit unique serial number
- User memory can be Block Perma-Locked as well as read password protected in 64 Bit Blocks
- Good read range, up to 14m with the appropriate antenna power and conditions
- Designed to comply with Customs-Trade Partnership Against Terrorism (C-TPAT) Container Security Initiative (CSI) and ISO28000 security methodologies
- Minimum strength characteristics, including pull-out strength, tensile, shear, bending and impact strengths comply with ISO/PAS 17712 requirements
- Minimum strength characteristics, including pull-out strength, tensile, shear,
- Plastic cover on locking chamber cracks and shatters on compromise attempt.
- Remove with bolt cutters.

Container Identification and trails of custody

The Tenacent Intermodal Container Seal V11 enables RFID integrators and container security solution providers to:

- Communicate unique container ID, status and user-defined information written to the chip between the Intermodal Seal V11, RFID readers and a central database.
- Use memory for user-defined information for limited audit and security purposes in line with World Shipping Council's (WSC) recommendations in a simple and secure fashion .
- Ensure end-to-end integrity in supply chains by securely sealing containers at origin after confirming the contents and using an "Off-Line" hand over audit at each change of culpability within the supply chain and ports of transit
- Verify the complete chain of responsibility of goods at points of destination, including the authorised sealing at the point of origin and security inspections conducted at various points of transit; Source authentisity and traceability of custody prevents the cloning of the Intermodal seals and enables offline verification of the source
- Automate seal inspections allowing for automated date and time-stamps facilitating security exception reporting
- Automate gate and third party security facilities such as booms and camera inspections.

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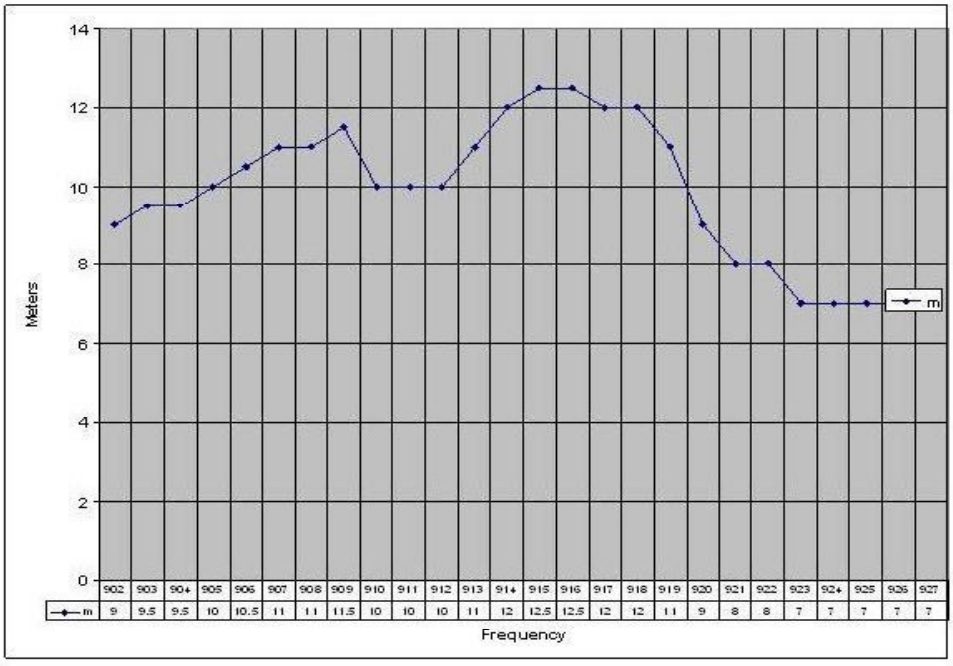
Intermodal Container Seal V11

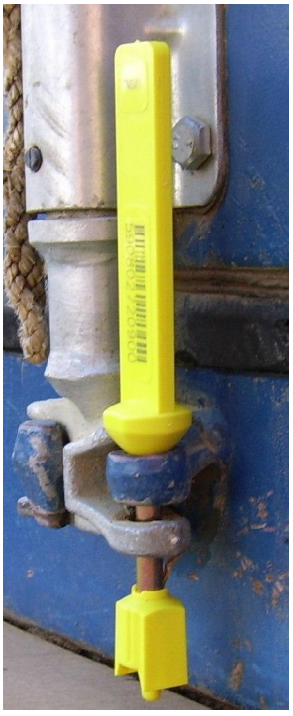
Specifications

Device name	Tenacent Intermodal Seal V11			
Power requirements	No batteries (passive RFID technology)			
Read Range	2 - 14 m Dependant on reader power output and antenna configuration			
Data rate	256 kbit/s typical			
Max tag speed	Dependant on number of tags read simultaneously; up to 80 km/h for tags mounted on container			
Memory Map	User	00h - 1FFh	User	NVM 512
	TID	60h - BFh	Device configuration	ROM-NVM 96
		20h - 5Fh	Unique Tag ID Unalterable	NVM 64
		00h - 1Fh	TID EPC/TMD/TMDID/TMN	ROM 32
	EPC	20h - 7Fh	EPC#	NVM 96
		10h - 1Fh	EPC-PC	NVM 16
		00h - 0Fh	EPC-CRC	RAM 16
	Reserved	20h - 3Fh	RES- Access Pwd, EPC optional	NVM 32
		00h -1Fh	RES-Kill Pwd	NVM 32
Antenna	Dipole antenna with integrated reflector and transmission lines			
Enclosure	Intermodal container bolt that complies with ISO/PAS 17712-2 and other ISO specifications			
Life Expectancy	Virtually indefinite			
Environmental	Operating temperature range: -50 to +85C Storage temperature range: -40 to +90C Waterproof, UV resistant and shock resistant Electromagnetic radiation: As per ISO 17363, Annexure A, Item j			
Physical	215 x 27 x 27 mm (Pin diam 9.5mm); mass 57 g			

Typical Performance



Typical read distance chart - Using a CSL101-2 handheld reader @ 90 deg from target seal



Patented: EP1665200 (BE,DE,ES,FR,GB,NL)Hong Kong:HK1092922 RSA:2004/2317 USA:7,557,706 NZ:546550 China:ZL 200480031422.X Singapore:120513 Australia:2004273213 Canada:2538746 Korea:1109205

DAYTON T. BROWN INC.
Founded 1950

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ACCREDITED
Testing Lab
Cert # 0767.01, 0767.02, 0767.03

3 November 2013
411863-12-04-C13-1136

Certificate of Conformance for Freight Container Mechanical Seal Testing

Seal Classification: High Security

Customer:	CATHAY SEAL PTE LTD Blk 167 Jalan Bukit Merah #05-12 (SR11) Tower 4 Singapore 150167
Attention:	Ms. Sylvia Tan
Purchase Order No.:	2013/09/0658
Sample Type:	Bolt Seal
Seal Name:	Tenacent Intermodal Seal V11 (as provided by customer)
Model No.:	TIMSV11 (as provided by customer)
Serial Nos.:	DTB 1 through DTB 26
Specification No.:	ISO 17712:2013(E) Clauses: 4.1.3 and 5
Date Received:	30 October 2013
Test Dates:	31 October through 1 November 2013

A total of 30 samples were received. Dayton T. Brown, Inc. certifies that 26 samples, 5 for each test and 1 for measurements, of the Seals referenced above were subjected to the following tests.

Test Name	Paragraph No.	Classification Rating
Bolt Seal Diameter Qualification	4.1.3	Meets Requirements
Tensile Test	5.2	High Security
Shear Test	5.3	High Security
Bending Test	5.4	High Security
Impact Test at Room Temp	5.5	High Security
Impact Test at Reduced Temp	5.5	High Security

Results: The above listed tests were completed with no discrepancies noted. Refer to Test Report No. 411863-12-04-R13-1137 for complete details.

The test results contained herein pertain only to the specimens listed in this report. This report shall not be reproduced, except in full, without the written approval of Dayton T. Brown, Inc.

Prepared by:		J. Benincasa
Engineer:		T. Zimoulis

James Benincasa
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Date: 2013.11.14 09:48:55 -05'00'